DVBIC September 2013 Webinar
Coaching Student Veterans and Service Members with TBI

Welcome, everyone, and thank you for standing by. At this time I would like to inform all participants that your lines will be in a listen-only mode for the duration of today's conference call. Today's conference is being recorded. If you have any objections, you may disconnect at this time.

I would now like to turn the meeting over to Lieutenant Commander Shields. Thank you. You may begin.

Thank you, ma'am. Good afternoon. Thank you for joining us today for DVBIC's September webinar. My name is Lieutenant Commander Kathleen Shields, DVBIC's Acting Director of Education, and I will be your moderator for today's webinar. We are very fortunate to have Dr. Mary Kennedy and Mr. Donald MacLennan as our presenters for our webinar, Coaching Student Veterans and Service Members With TBI. Before I proceed with introductions, let's review some details of this webinar.

Live closed captioning is now available through Federal Relay Conference Captioning. Please see the pod below the presentation. As many of you know, Continuing Education units and Continuing Medical Education credits are available from St. Louis University. This webinar is approved for the following CE credits: 1.5 AMA PRA Category One credits, 1.5 credits for Psychology, 1.5 nursing contact hours, 1.75 CE contact hours for physical and occupational therapists and assistants, 1.5 CE hours for social work. Please note that DVBIC's awarding of Continuing Education credit is limited in scope to healthcare providers who actively provide psychological health and traumatic brain injury care to U.S. active duty service members, reservists, National Guardsmen, military veterans, and/or their families.

If you met the eligibility requirements to receive CE credit and also preregistered on or before 11:59 p.m. on Sunday, September 8, 2013, you must complete the online CE evaluation to obtain a CE certificate. Certificates of attendance are also available to all who registered on or before September 8, 2013. Please visit the Swank Healthcare website to complete the online evaluation and download your certificate. The Swank Healthcare website will be open through Wednesday, September 24, 2013, at 11:59 p.m. Eastern Daylight Time.

For full accreditation information, visit www.dvbic.org and click on Medical Providers to access the webinar series. Today's presentation is available for download from dvbic.org's online education. Please note that there may be a delay as we advance the slides during the webinar. Please be patient as the connection catches up with the speaker's comments.

We encourage you to submit your questions throughout the presentation via the Question and Answer box located on your screen. There will be a question and answer session at the conclusion of the presentation. The presenters will respond to as many questions as time permits.

To begin today's webinar, I would like to provide an overview of our topic. Student veterans as service members with traumatic brain injury experience unique challenges as they navigate college and community life. In this webinar, participants will learn about dynamic coaching in which clinicians act as coaches who model and instruct clients to use self-regulation. Coaching occurs within three evidence-based domains or areas of need: self-learning, self-organizing, and self-advocacy. In these domains, participants will learn how to collaborate with clients to identify goals, create plans, select strategies, track performance, and make adjustments. The speakers will emphasize coaching that prepares clients to attend college and supports them while they are there. Participants also will learn to use goal attainment scaling to create person-centered outcomes. Additional resources will be provided for clinicians working with students, veterans, and service members with TBI.

Our two speakers today are Dr. Mary Kennedy and Mr. Don MacLennan. Dr. Mary Kennedy has many years of clinical and research experience with young adults with executive dysfunction after brain injury. She has published on topics related to executive dysfunction, metacognition, and self-regulation, and

works nationally and locally as an advocate for individuals with cognitive disabilities. Additionally, she has chaired and/or worked with several professional groups who review the cognitive rehabilitation therapy evidence and create evidence-based practice guidelines. Currently she conducts outcome and intervention research with college students with brain injury using a dynamic coaching model and runs the neurocognitive communication lab with graduate students.

Mr. Don MacLennan has provided cognitive rehabilitation across the continuum of care to veterans and active duty service members for more than 30 years. He is a member of the Minneapolis VA Healthcare System's polytrauma transitional rehabilitation team. This team helps veterans and service members make the transition back to school and work.

Please join me in welcoming Dr. Kennedy and Mr. MacLennan.

Thank you, Lieutenant Commander Shields. Let me start first by stating that the views expressed in this presentation are those of the presenters or moderator and do not reflect the official policy of the Department of Defense, Department of Veterans Affairs, or the U.S. Government. We do not have a relevant financial relationship to disclose, and we do not intend to discuss an off-label investigative use of a commercial product.

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Before we delve into how to coach college students with brain injury, I think it's important to establish the foundation for this approach. Most of you are aware that cognition can be easily divided into two categories of processes, higher processes and basic processes. We're not going to talk too much today about the more basic processes of attention, language or memory, but we are going to focus on the higher cognitive processes, self-awareness of the sense of self, executive functions, and self-regulation. These higher cognitive processes, through many years of research, have been found to be the regulators or the enforcers of strategies that we decide to use to either enhance our attention, memory, and our language use, and helps us make good decisions along the way. These higher cognitive processes are associated with the frontal lobes, including the grey matter and the white matter, which are the pathways that connect virtually the rest of the cerebral hemispheres.

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So let's talk about executive functions first. Here's a simple but very relevant definition provided by Cicero (sp) and colleagues. Executive functions are integrative cognitive processes that determine goal-directed and purposeful behavior in daily life. There are many definitions of executive function that look similar to this. No matter which one you choose or endorse, they typically have five to six constructs or variables, and these constructs or variables are based on various models of executive function that have been conducted through research.

If you look at this list, you'll notice that the one on the bottom, to monitor and adapt behavior to fit a particular task or context, is the one that I've highlighted. If you think about what this means, this ongoing ability to self-assess and change your behavior, it really is required to be able to come up with a goal, to initiate and sustain a behavior, to think about the consequences and come up with a plan of action, and to organize your behavior in the logical sequence.

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Let's think a little bit about that last bulleted item that I had bolded on the prior slide. In this slide you'll see that self-regulation, which is the monitoring and self-control processes, is in the middle. On the left-hand

side of your slide, you'll see the heading Rehabilitation and Neuropsychology. And while Rehabilitation and Neuropsychology have described these higher cognitive processes as executive functions, as well as self-awareness, at the very same time this was going on historically, other fields in psychology were defining these higher cognitive processes in slightly different ways and using different language.

So this whole field of metacognition came about in the early sixties through the founder of metacognition, John Flavell. He was a developmental psychologist. At that time, cognitive psychology was emerging, and educational psychology was emerging. And so these three fields of psychology began to use the term "metacognition," which is simply thinking about your thinking. Only later did these fields begin to use the term "self-regulation."

At the same time, these fields of psychology began to describe what rehabilitation psychology had talked about as self-awareness or sense of self using the term "autobiographical beliefs."

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In this simple figure that Dr. Carl Correlle (sp) and I described originally in 2005, you'll see that the whole area of self-regulation can be simplified. So this figure represents the ongoing relationships between self-monitoring, or being able to assess how you are doing, from strategy decisions, which are basically related to processes of self-control. And one important point to think about here is we often think about self-control as a process that allows us to stop a behavior or inhibit ourselves from doing something, but self-control is also a strategy decision. In other words, it is the decision to not behave in a certain way or it is the decision to behave in a certain way.

And then based on that strategy we decided to execute the strategy, to actually carry it out. And then, of course, if we're continuing this feedback loop, we're going to need to evaluate our own performance. In other words, when I executed that strategy, did it meet my goal.

So let me give you an example of this. I used to be really good at remembering people's names. I've always been good at remember details about people, but when I was younger I was very good at remembering people's names. So I noticed a few years ago that while I could still remember details about people, I was having trouble remembering their names. And so my goal is to improve my ability to remember people's names, particularly at conferences. And this was a special problem that I seemed to have. Someone would come up to me and I would remember who they were, but I couldn't remember their name.

So I decided to improve my ability to remember people's names at conferences that the strategy I would use would be as I saw someone approaching me, I would quick divert my face down to their nametag. And as long as people are wearing their nametags, this strategy generally works. So I executed the strategy and it works. I remember people's names, and I'm more likely to remember their names in the future.

Now that's a way of compensating for the problem that I continue to have, which is remembering people's names. But at the bottom of this slide you'll see a box. It says "Metacognitive Beliefs and Self-Awareness." So this has happened so much that now I really believe that I'm not very good at remembering people's names. Years ago this wasn't the case. I was better at it, but through this occurring over and over and over again, I'm really not very good at remembering people's names.

So we don't have a lot of research about how many opportunities or experiences you have to have to be able to actually change the sense of who you are or your metacognitive beliefs about yourself. But we do

know that by having people engage in this feedback loop over and over and over again, that at some point they will begin to adjust the sense of who they are.

Next slide.

So self-regulation is really central to executive functions. It allows individuals to guide their goal-directed activities over time, including the modulation of affect or emotion, cognition and behavior. It reflects goal-oriented behavior, and it includes many processes that are operating all at the same time in concert.

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I think we can all pretty much agree that self-regulation is required for all of our activity at home, school and work, and it's particularly important when people have had a traumatic brain injury and they're trying to reintegrate back into the community. It's required for them to creatively solve problems, for them to be able to adapt and adjust to change, to be well organized and goal oriented, and to engage in ongoing formal and informal learning and training. Something that's required of all of us in this day and age.

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So if we believe that self-regulation consists of several processes, then that is actually what we need to be instructing individuals how to do. We need to be instructing them in the process of self-regulation. Detterman (sp) said many years ago the lesson learned from studies of transfer is that if you want people to learn something, teach it to them. Don't teach something else and expect them to figure out what you really want them to do.

And before we go any further, I just have to note that my former colleague, Mark Ilvasaker (sp) said, and I quote, "What you do with what you have is more important than what you actually have."

Next slide.

So what is dynamic coaching? Coaching is a collaborative approach that models and explicitly instructs individuals to self-regulate in the process of self-regulation. It becomes a new way of thinking. It is based on the reciprocal relationship between the client and the coach, or the person with brain injury and the coach. There is an ongoing adjustment and problem solving that occurs in conversations and interviews with the client and the coach. By doing this the client experiences and has it modeled for him or her how to think in a self-regulated manner.

Dynamic coaching also occurs in context. It can occur as an outpatient with an eye towards being useful in the future, when the person goes back to work or college. And in the context that we're using it in, it occurs in real time. And in real time, as one is enrolled in college, they get constant feedback and then they share that feedback with us in coaching sessions.

Our long-term goal is really for our clients to become their own experts and not for us to remain the experts in their abilities.

Next slide.

So this just compares some of the traditional views of therapy to dynamic coaching. And you can see that some of these items on the list are the same. For example, educating the individual about the kinds of problems and the abilities that they still have.

But you can see, then, the rest of it, there is somewhat of a distinction. So perhaps in more traditional therapy the clinician is viewed as the expert, but in dynamic coaching, the client and the clinician coach are together experts. This is a really important point. By letting the client know that they have a lot of information about themselves that they are going to share with you, that together you and him or her are going to use this information and way of thinking to solve problems together.

Dynamic coaching relies on interview information and observing of behavior. And it also relies on the clinician coach asking a lot of questions, guiding the conversation for solutions, and instructing the person, if needed, in strategies that the client agrees he or she is willing to learn.

The other important thing about coaching is that the clinician coach is only providing the structure and the modeling of the self-regulation processes, whereas the client really is providing the content. They're bringing in materials from their course or from their job. They're bringing in evidence that they have tracked their own behavior during the week. So that the clinician is not the one coming up with the content of the coaching sessions.

Some other similarities and differences are around the area of goals, and we'll talk about process-based goals a little later. And coaching really is less intensive. It's about once weekly or as needed, whereas more intensive therapy is on a more regular basis.

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So what is the research basis for dynamic coaching? There are four areas that we've looked at very broadly to help us understand why is it the dynamic coaching appears to be effective.

The self-regulated learning and work and school research we'll talk about. Instructional methods for individuals with brain injury, there are specific factors that contribute to post-secondary education and vocational success, and our own practical experiences.

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So take a minute and answer this first question. Dynamic coaching consists of: (a) both the client and clinician coach as experts; (b) rely heavily on the interview behavior; (c) less intensive, once weekly; and (d) all of the above.

We'll let those come in. And the answer is (d), all of the above.

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So let's talk about self-regulated learning in work and education. There's a nice meta-analysis that was published a couple of years ago by Sitzman and Ely. And they identified four aspects of self-regulation that had the strongest effects on learning in education and in the workplace. These included being able to identify a goal, being persistent in following a plan of action, putting in sufficient effort, which is also related to motivation, and self-efficacy, being able to understand your strengths and your weaknesses and being able to identify where you're going to need support.

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There are also instructional methods, particularly in the area of cognitive rehabilitation, that we now know are effective. And these include having the client create functional, very person-centered goals. And these are best when they are created collaboratively with the clinician.

Also we know that metacognitive strategies, which are reliant on self-regulation and direct instruction, so in other words step-by-step teaching of complex activities in order to use strategies are effective. We know based on our more basic research that individuals with brain injury do, in fact, base strategy decisions on their self-assessment or their self-monitoring. So it's especially important that their self-monitoring be accurate. And we also know, based on the research and from clinical feedback in our own settings, that feedback is very important, and people with brain injury certainly benefit from feedback.

We also know that for a strategy to become a routine, or a procedure to become a routine, that the individual needs to feel as if it has become effortless. I think we can all relate to going on vacation and suddenly our exercise or our physical workout routine has been interrupted, and then we come back from vacation and it's difficult to get that routine established again. So that sense of effortlessness can be maintained over a period of time, but if there is a change in the environment or a change in the routine, then suddenly it can feel more effortful, until it's engaged in over and over again, again.

We also know that practice should be naturally distributed, and I believe Don is going to give us some examples of how that is in cognitive rehabilitation.

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This slide simply is a graph of a finding that we discovered in a meta-analysis that we did five years ago. So we did a study, a meta-analysis, looking at treatment for executive functions. And particularly we focused in on planning since that was the largest area of research. And what we found was that metacognitive strategy instructions, so instructions that included a self-awareness or self-monitoring piece, like how am I doing, instructions where maybe they tracked their own behavior, instructions where they identified what kinds of strategies they should use, ended up showing the biggest functional outcomes.

So on the left-hand side of the bar graph you'll see impairment level outcomes, and that's using language from the World Health Organization, so this just means standardized test scores. And what you want to see is that when the instructions for the strategy did not include metacognitive parts or direct instruction, and also for when the instructions did include that metacognitive piece, that changes in the standardized test scores were about the same and they were significantly improved.

It wasn't really until you got into more functional outcomes, defined as activities or societal participation, that you saw a boost in those outcomes where therapy had used metacognitive strategy instruction. So, in other words, it isn't a surprise that standardized test scores would improve in either of these kinds of delivery of instructions to use strategies, but it was only when individuals received metacognitive strategy instruction that you saw a bigger boost in functional changes.

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There are also factors that we know contribute to post-secondary education, also vocational, success. These include persistence and resiliency. For example, we know that the typical college student who scores high in persistence and motivation and also scores high in the ability to come back and change their plan once they have failed, that those students are more likely to make good progress towards their degree and are more likely to graduate from four-year institutions.

We also know from a variety of research that students who focus on the process or the steps involved over the course of a semester are more likely to actually reach their end goal of a particular grade and have the supplemental, or the byproduct, of having reduced stress compared to students who just focus on the end goal, which in this case, the example in this study, was a particular grade.

We also know that students who receive reasonable accommodations through disability services do better and are more likely to stay in school than students who do not receive reasonable accommodations.

And then all aspects of universal design in education as well as in the work environment are critically important.

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Our experience with dynamic coaching is another source of evidence in this presentation today. We've coached college students with traumatic brain injury since 2009, and we have ongoing research that we've now published, and we have a contract with the Minnesota Vocational Rehabilitation Services.

Our goal, again, is for our students to become experts in themselves, and to do that we explicitly instruct them in self-regulation processes.

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So here's this figure again on self-regulation, and this time we've added a number of steps, steps one through ten.

If you go to the next slide, you will see, in color, the various steps identified. So to be able to create a goal, you have to be able to self-monitor. You have to be able to know how you're doing at a particular time in order to say to yourself, well, I'm not reaching my goal. And so that would involve a couple of steps, being able to identify potential goals and being able to select one that's doable.

Now the next phase of then after having selected a doable goal is to come up with some kind of strategy. And there are three steps that would involve self-control. People need to identify potential strategies for solutions, then they need to be able to select the optimal one, and to have a backup. And then a part of that process is to come up with the steps and gather the materials, if there are any involved in that strategy.

Then executing the strategy involves steps six, seven, and eight. The person needs to initiate the strategy steps, they have to check their strategy and make sure they're using the strategy, and then they also have to check their performance. So there are two checks there. One is the strategy use, am I using the strategy, and the other one is to track their own performance. Now that I'm using this strategy, how am I doing?

And then step nine and ten is the end of the feedback loop, and it allows the person to compare their goal to their performance and to review it explicitly. And then along with the coach or on their own, they get instruction to go ahead and adjust that goal if need be or change the strategy. And then all of this process goes on again if the strategy is changed.

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In 2010, Dr. Miriam Krause and I had done some research using a survey tool that we've developed, and we asked about 45 individuals with brain injury to take the survey, and by looking at their answers to 13 different college experiences that they endorsed or didn't endorse, we identified three primary domains. One was self-learning, another one was self-management, and another is self-advocacy. And these are the three domains that we use in our college program.

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These 13 college experiences are listed on the College Survey for Students With Brain Injury, which you are free to download from our website if you like. Let me spend just a little time explaining this slide and the recent results that are portrayed on this slide.

Recently we had a sample of 103 respondents answer our survey. Forty-eight with traumatic brain injury and 55 without brain injury. And there are 13 college statements that they either endorsed or didn't endorse, they rate using a Likert rating scale. And what we found was that these 13 statements were highly correlated, and so we needed to change. We needed to look at the data and come up with a way of analyzing it. So we did what's called a factor analysis. And I won't go into the details of that, but out of that factor analysis, we discovered that there were four factors, rather than the three from 2010.

So learning and studying came out as explaining 23% of the model. Managing and organizing, prioritizing, came out with an equal amount of explaining the model. Social related items, such as I don't have as many friends as I used to, or others don't understand my problems, came out as identifying 15%. And the one that just came out recently is the area what we're calling being nervous, I get nervous before exams, I'm overwhelmed in class.

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So let me give you a couple of examples of how, in the Venn Diagram slide, some of these areas overlap. So one example is of a student who was having anxiety in the classroom. And she felt that her anxiety or nervousness was interfering with her ability to listen to the lecture and take notes. She had an accommodation that she could record the lecture and she also had a note taker, but she really wanted to take notes herself. So she started to use Livescribe, or the Smartpen, which is a pen that records while you write. And after she used it about a month, she reported to us that her nervousness, her anxiety in class, had completely disappeared because of the use of that technology.

Another example is an individual who's goals were in the area of social and self-advocacy. She also suffered from being very nervous. And this was a student who, prior to working with us, did not want to use her accommodation of taking tests in the Office of Disability Services. With coaching and through an exploration of the reasons why she was resistant to that, she agreed to take the exam in Disability Services. And what she reported was that, although she didn't know if it actually improved her grade on the exam, what she noticed was that her headache – she did not have a headache when she finished the exam, she wasn't fatigued and tired, and she didn't feel nervous, and she felt like she could go on to her part-time job and not be as anxious.

Next slide.

So in looking at these three domains of studying, management and self-advocacy, Katie O'Brien and I have continued to work with students with brain injury. And as a variety of students have come to work with us, we now believe that the area of management is a core skill. And the reason for that is that if individuals are so disorganized and unable to get themselves to class or turn their projects in on time, then as a coach, and even for themselves, we're not able to see whether they can actually succeed at college.

Next slide.

All right. Thanks, Mary.

And with that as a background, what I'd like to do is talk about coaching as it applies to college simulation programs.

College simulation programs recreate college-like activities in a medical setting and can serve as a bridge between hospital and school. A college simulation experience can identify cognitive challenges that may not be captured by formal testing. It can facilitate awareness of weaknesses, and just as importantly, strengths of an individual. It can facilitate the development of strategies and identification of assistive technology to support organization, concentration, and learning. It can serve to identify effective academic accommodations before entering college, and in this way a student can identify a college that may offer those accommodations. And it can also be useful in teaching students how they might evaluate programs and apply to schools.

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This approach emphasizes executive function skills, and is consistent with the coaching approach described by Dr. Kennedy. In this approach, I work to support the students to discover a need or challenge that may be a barrier to successful school performance, develop a goal to frame what they want to achieve, identify and rehearse the strategy to attain that goal, implement the strategy in some context that simulates college work, self-monitor their own performance, and evaluate the effectiveness of the strategy. And I want to emphasize that this is a collaborative approach in which decision making is really done by the student. When I offer information or suggestions, I will typically ask for permission to do so because most of this should not be my decision. Very little of this process should ever be my decision. It really should be a collaborative process where I'm supporting the student in making their own decisions.

Where possible, I may suggest several strategies and engage the student in discussion of the pros and cons of the strategies, again with the student ultimately choosing the one that seems to offer the best fit.

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Okay. Here's another polling question. So the question is, when coaching, which core skill should a student possess? (a) self-advocacy; (b) studying and learning; (c) management; (d) none of the above. Or, you can choose not to vote.

Results are coming in. Okay, just about done. The answer here is actually (c) management, and I think that this is because the real work involved in this process occurs outside the clinic setting. And the student has to be able to organize themselves in a way where they can initiate and track what they're doing so that there is something to discuss and work on in the individual sessions. So it's the student's ability to organize it that drives the process.

Next polling question. True or false. Advantages of college simulation activities include identifying cognitive challenges not found on neuropsychological testing, facilitating strategy development and assistive technology to support core skills, and identifying appropriate academic accommodations before entering college.

Okay. And that one is true. It does involve all of these processes.

Okay, next slide.

Popped up on my screen. Okay. Nope, that's the same slide. Okay.

Was there one back? I'm sorry, could you back up one? Okay. Okay, okay, back up to 38. I'm sorry.

The point here, in the time that we have, I think, is not to provide an extensive list of strategies, but rather to pick a couple of examples of how the coaching process can be used to support a student as they

identify, implement, and evaluate those strategies. We'll look at one example focusing on making accurate judgments of learning and another focusing on a strategy to improve the efficiency of learning.

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So often when I start this process of exploring academic needs with a student, I'll usually start with a hypothesis-driven approach. And I'll ask the student, how well do you think you'll do on a test after first listening to two lectures at a slow pace where you have all the time you need to take notes and have any questions answered, and second, you are given as much time as you feel you need to study. And I ask them to make a hypothesis regarding their performance in the form of a prediction of how well they'll do on a test. And the test they receive is given in two separate parts. One part is a multiple choice test involving recognition memory where the right answer is on the page and all the student has to do is recognize it. The other part is short answer test, where the same information is tested in a recall format. No help is available, and the student has to recall and organize the information to answer the question.

What I find, typically, is that students often do well on the multiple choice test, but they almost always do poorly on the short answer version of the test. So what I can often say to people is that the good news is that you're learning because you didn't know this stuff before you studied, and the bad news is that you don't have full command of the information and may not do well on essay tests or other types of assessments where you have to recall and apply material.

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As an illustration of this, I'll talk about a young active duty service member who did this exercise and received a score of 65% on the multiple choice test and 32% on the short answer questions. His prediction was that he would receive a score of 85%, and what he said when receiving the feedback was, "How did this happen? O knew this information ten minutes ago." And when asked why he said that, he indicated that he had been looking at exactly that information in his notes just prior to taking the test. And we'll come back to that.

Further discussion focused on what outcome he really wanted on a test like this, and he basically reaffirmed that he wanted to get scores of at least 85%, so this became his goal. He would study notes and receive a score of at least 85% on a test of the material.

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So in terms of beginning to develop a strategy for him, I went back to his comment where he had said, how did this happen, I knew this ten minutes ago, and I asked him, how did you study? And what he said was that he looked at his notes once a day in the three-day interval between the lectures and the test, and when he studied he looked at and rehearsed the notes, reading them over several times for at least about 20 minutes or so. And I asked him what worked about this approach, and he said he thought that he had taken really good notes and that he had found consistent time to study his notes. And I asked what didn't work, and he said, well, obviously, the information didn't stick, and I didn't do as well as I wanted.

So at this point he had his notes open out on the table, and I pointed to them and I asked him for the definition of TBI. He looked down at the notes, found the definition, and told me. I then turned the page and we spent about five minutes going over other information in the notes, and after that I went back to the first page, covered up the definition of TBI, and asked him, so now, what is the definition of TBI. And he looked down at the notes, found he couldn't read the answer, and with a very strange look on his face said, "I guess I don't know, not without looking." And essentially this prompted discussion of the flaw in his

strategy. So basically when you're studying notes, you can't make judgments of learning while you're looking at the notes because the information is already in your short-term memory, which doesn't offer permanent storage of information. Judgments of learning are best made after a delay where it has to be recalled from long-term memory. If you can't recall the information after a delay, you really don't know it.

Next slide, please.

When asked what he thought he needed to do to improve his studying, he said he needed to find a way to test himself to make sure he knew information but wasn't sure how he'd go about doing it. So with his permission I suggested a couple of approaches to him. One, converting information in his notes to flashcards that he could self-test, or using a key word approach. And the key word strategy involves placing key words in the left-hand margin of the notes that pertains to the larger concepts in the body of the notes on the right. And this allows for self-testing after a delay by simply covering the notes, reading the key word, and checking to see whether the information can be retrieved using the key word as a cue.

He selected the key word approach as the one that seemed the most efficient for him because he could use his existing notes, and developed a strategy goal in which he would use his key word approach to study and self-evaluate its effectiveness for accurately judging learned information.

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He recopied his notes, putting key words and phrases to the left of the main body of the notes, and this slide shows an example of some of the information that he had had in his notes. So in a session he was able to demonstrate how he would self-test. He used the key word approach to reliably distinguish between learned and unlearned information, and was surprised to find out that out of 25 key words, each covering different sections of his notes, he could only recall relevant information related to nine of the key words.

And he said that knowing this, he'd be able to spend extra time rehearsing the information that he hadn't fully learned and only occasionally review information that he was sure he knew.

As a next step, he suggested he use this approach to learn the information from the two lectures and retake the test. That was what he identified as the next step.

Next slide, please. Okay.

This is a plan-do review sheet, and it's used to kind of summarize the coaching process on paper. Identifying the goals, the strategy, predictions for the strategy, as well as the implementation and evaluation of the strategy. And here his individual goal was to receive a score of 85% on the test. His strategy goal was to both use and evaluate the strategy. His plan was to use the key word strategy to identify what he didn't know within his notes. His predicted time to use the key word approach to learn the information was about an hour. In reviewing this prediction though, he noted that he achieved the goal but it took him three-and-a-half hours of study before he learned it, much, much more than he thought.

So in his review of the strategy, he concluded that the key word strategy was effective in guiding him towards the material he needed to study, but that the actual learning took him longer than expected indicating he'd have to budget more time. And he also expressed interest in exploring other learning strategies that might make his learning more efficient.

Next slide.

In the next example, I was working with a young active duty service member, with the goal of becoming an aircraft mechanic. He brought with him five Air Force self-study manuals on the topic, and the manuals had chapters with a list of study questions at the end of each unit. And at the time he came into the program, he was getting a little less than 50% on the unit tests and he required a minimum score of 80% to pass each test. And this was similar to his performance on the hypothesis-driven lecture and test activity that I just described.

Next slide.

He essentially came to the program with a ready-made goal. He wanted to pass the aircraft mechanics course and needed at least 80% correct on the individual unit tests to pass, so this became his individual goal.

Next slide.

So in discussion of his performance, figuring out what he was doing, it became clear that his difficulty was not due to problems understanding the material, or difficulty with judgments of learning. He could point out the material in the chapters that he knew he was a little shaky on. And in order to reflect level of effort, he was spending hours studying the material. His difficulty did appear to be due to transferring information from short-term memory into long-term memory, and he basically said, “I try and try and try again, and it’s just not getting there.”

Next slide.

So I asked him, what did you do in high school when you really needed to learn difficult information? I’m trying to find what strategies he’d had some success with before, and he told me that basically he had rehearsed the information over and over until he learned it, sometimes pacing around in his room. And I asked him, why do you think this isn’t working for you now? And he said the information was more technical, there was more information to it, lots of inter-related facts, and the facts started blurring into each other, which I think is a nice definition of memory interference.

Next slide.

I asked if I could suggest a strategy that seems to fit with his style of studying and the difficulties he felt he was having, and I talked to him about spaced retrieval. The spaced retrieval strategy involves first rehearsing and memorizing a small amount of information, followed by systematic retrieval of that information over time at successively longer intervals to consolidate the information into long-term memory. And it makes use of two effective memory strategies, repeated rehearsal, or mass practice, and distributing that rehearsal over time, or distributive practice. And he expressed a willingness to try the strategy, and his strategy goal became that he would use the spaced retrieval strategy to study a unit in the first manual and would self-evaluate the strategy’s effectiveness for learning based on his performance on the test.

Next slide.

So what he did was created flashcards in which he put the questions for a given unit on one side of the card and answers on the other, and the spaced retrieval procedure that he used involved studying his unlearned questions for ten minutes, and after that time selecting only the cards that he had learned. That is, selecting the cards where he could look at the question, say the answer without checking. By limiting the learning time to ten minutes, that effectively limited the amount he was learning at one time and would hopefully reduce any interference effects.

After learning the cards he set a countdown timer at intervals of one, two, four, eight, 15, 30 and 60 minutes, basically doubling the time of each interval. In this way, in a two-hour span he reviewed the information seven times. And he could do other activities while he was learning. He could be doing other things. He found he could almost always retain the information across the intervals. He used this approach twice each day, learning new sets of questions in the morning and the afternoon, and he reviewed the questions again in the evening. And those that he remembered in the evening, he put into a stack of learned cards, a cumulative stack for review, that he would review twice a day.

Next slide.

On his plan-do review sheet, his individual goal was to attain a score of at least 80% on a unit test for his aircraft mechanics course. His strategy goal was to both use and evaluate the spaced retrieval approach for learning. His plan was to use spaced retrieval to learn the questions. And he achieved the goal, scoring 87% on the test.

In his review of the strategy he noted that his predicted time to learn the information for the first unit was five hours, but his actual time spent was much less. He found that if he didn't count the retrieval portion of the strategy, you know, that two-hour block where he periodically spent about a minute or so checking his retention on the cards he was trying to learn, if he didn't count that the total time spent in the ten minutes of initial rehearsal and the time spent reviewing his cumulative review cards was about two hours. So the strategy was much more efficient than he expected. He adopted the strategy, and in his time within our program, he was able to pass – I can't remember, I think it was three or four of the manuals, completing the tests on those manuals.

Next slide, please.

So, in summary, basically the college simulation has, I think, a lot to offer in the transition between hospital and school. However, once a student is on campus, college simulations may be perceived as a step backward because it simply isn't real college work.

And with that I'll turn this back to Dr. Kennedy who can outline an effective on-campus approach to supported education.

Next slide.

Thank you, Don. Next slide.

So college simulations and a college program on campus are not the same thing. They do have some similarities in that we are involved in instructing our students in self-regulation processes, but, as you can see, a college program occurs in context, and it is in real time while students are enrolled and taking courses. They get real live feedback from their peers, from their instructors in the forms of grades and for projects, and there's also a cost so that they understand that there is a financial cost, but there's also a cost in their grades. I often say that grades don't go away, your transcripts are always with you. So there's an emphasis on using strategies, and not that we're opposed to instructing people in strategies if they're needed, but these strategies are usually collaboratively identified and taught.

Next slide.

So in the college program that we run, we have an intake and an evaluation process, and I won't go through all the details of that, but basically we rely heavily on interview information and we ask the student about their academic experiences in the past, their vocational goals, their history. And we're really

interested in getting their medical record if that's available and also any academic records that might be available. If neuropsychological reports and testing are not available, then we rely more heavily on interviewing. Once we get the neuropsychological report, if there are supplemental tests that we need to given, then we go ahead and do that.

Next slide.

So in our structured interview we use the College Survey for Students With Brain Injury, and here are a couple of examples of the items that ask about college experiences. Students have to rate their responses on a Likert rating scale. One might be I have to review material more than I used to, and the student says that they agree. And the interviewer says, can you give me an example, or how do you review, or what do you do to review. Sometimes students need an example here such as well, do you highlight, how much do you highlight.

Another example might be from the social domain. I have fewer friends than before, and they rank that as well, they're not sure. And so, upon interviewing, you can find out, well, why are you uncertain about this, and the student might say, well, I don't really have fewer friends, I just have different friends. I have better friends now.

Next slide.

Here are some examples of fairly common goals across the three domains of learning. Self-management, self-advocacy. And you'll notice that these goals are – they vary in range from very specific to very broad, and so for those broader, long-term goals, students typically need some assistance, some guidance in how to break a large goal into something that's more doable, into smaller goals.

If you look at the self-advocacy list of goals, there might be one such as, I want to discuss my brain injury with my employer or my instructor. There might be one such as I really want to find more activities that I can do with my friends. One note about the advocacy goals, even though the domain is considered social, we decided to change the wording of that to self-advocacy. We found that students at the college level really aren't interested in creating goals that are called social. They kind of look at you funny and don't understand what you're talking about. And so self-advocacy is something that really resonates with students.

Next slide.

Here's a list of potential common, immediate kinds of person-centered goals that can easily be measured that the student can implement right away, and then here's a list of more longer-term person-centered goals like grades, decisions about roommates or academic majors, acknowledging the need for accommodations. And what you'll notice is that the long-term goals, again, are broader, and students may, in fact, need some assistance in figuring out how to break these longer-term goals down into more immediate person-centered goals.

Next slide.

So here's another true/false question. Creating a team benefits the students academically and emotionally. And we'll wait for the responses to come in. And the answer to that is it's true.

And if you go to the next slide, which says "Create a Team," we have our students create a team if they're open to that, and the student themselves identifies who they would like to be on their team. This seems to really work well with students because most of them have been on athletic teams or many have. Being on

a team to work on a project is something that they've experienced before. And certainly with military service men and women, they've worked in teams.

So allowing the student and encouraging the student to form a team is something that some of our students have opted to do. It's also an interdisciplinary team, and what you notice is that it can include family members of friends. We encourage the person to include disability services and voc rehab services. And the thing to remember about having a team approach is that social networks help us to build resiliency. And people who have more buoyancy or ability to bounce back are often people who have rich social networks.

Next slide.

I'd like to give you just a few examples in each of the domains, so here's one example from self-management. This was a student who had difficulty keeping his school and social life organized. He'd had multiple mild TBIs, and he couldn't really figure out why he was having trouble. He had taken a reduced course load, with accommodations. He was in the fatigue management program. He had eye exercises that he did on a daily basis, but he still was having trouble with sleep even though he was getting medication for his headaches.

Next slide.

One of the things that we had him do was to track the activities that he needed to do under the plan and write in the amount of time he thought it was going to take him to do that activity, and then to also record the actual amount of time it took him to do the activity, and then review it with himself and review it with the coach.

Next slide.

So this is what it actually looked like. And I realize that you can't read it, but we were perfectly fine with how messy this was because this worked for him.

So at the end of the year being coached, he said in the interview that he got stressed when he didn't plan ahead and when he wasn't able to schedule the right amount of time he needed for school-related work. And that after he had implemented use of this form, this really improved his ability to plan ahead, and he noticed he was much less stressed.

Next slide.

Some other self-management kinds of goals would be creating realistic time frames, scheduling, creating schedules by the week, by the semester, integrating all the scheduling information into one place because students have information – they have schedules from work, they have schedules from school, they have schedules from their syllabus, they have social schedules, and often they need a central repository for all of this. And then also creating a schedule for big research projects or writing projects.

Next slide.

Let me give you one example of a self-learning goal. This was a student who had severe declarative memory problems. But surprisingly he had fairly good executive function. He was having difficulty reading, remembering what he read from a novel in his literature class. And he had identified a strategy in a prior class he had taken where he had created a reading journal. So he developed a goal with the goal, using goal attainment scaling, which I'll show you in a minute, and he began journaling each chapter and

reviewing the notes. And mind you, his memory was so impaired that he would actually forget what he had read the day before.

So he's began to journal after each chapter and review the notes, and he self-checked for improvement each week. So he gave himself a rating using goal attainment scaling.

He tracked his maintenance of this routine over a three-week period just to make sure he was actually using the journaling approach, and he actually gave him a rating of five, which you'll see on the next slide was the top level of achievement.

Next slide.

For those of you that aren't familiar with goal attainment scaling, it's an individualized scaling system, and coaches and clinicians together will develop these goals and the steps within these goals. It also allows individuals to quantify their progress. Very individualized. So the levels of achievement are unique to them and them alone. And there has been some research that has shown that goal attainment scaling really is effective especially in the area of executive functions.

Next slide.

So for our example of our individual with severe declarative memory, the impairment, you can see that the starting point on the goal attainment scale was a two. He was just going to read and write summaries of a few chapters, effectiveness of notes and triggering recausing consistent. His target was just a three, and you can see that it wasn't perfect by any means, but it was an improvement from the starting point of two. And number five, step number five, he suspected was unattainable, but it turned out that this was a very self-motivating activity for him, and he eventually reached level five.

Next slide.

Some other examples of self-learning type of goal. An example of a product-based goal is a student's grade is going to improve on weekly quizzes in math, for example. But a process-based goal is what some have called intention implementation goals, where the student is going to record lectures while taking notes using Livescribe. Or the student will review lectures prior to the quiz. Or the student is going to evaluate the strategy usefulness.

Next slide.

So here's just a list of some other goals that could be attributed to the area of self-learning. So using that self-regulation process, we often see part of our role as being to extinguish ineffective strategies. And the most ineffective strategy that students consistently tell us they use is simply repetition or rehearse the information over and over again. There's a lot of research to show that not only repetition and rehearsal is ineffective, it also increases one's confidence, so the more you rehearse, the more confident you become that it's improving your memory or your learning, but it's actually not doing that.

Next slide.

Here's an example of a student who developed a self-advocacy goal. This is a student who wanted to attain a GPA of 4.0, and actually this student had the capability of doing that, so that wasn't completely out of the reach. The side effect, however, was quite a bit of self-doubt and anxiety. She spent most of her time studying. She didn't socialize at all. And she repeatedly checked her work to excess. She developed three goals, two self-advocacy and one self-assessment goal. She wanted to participate in more activities on campus. She wanted to sit in a common area during meals so that she would at least

be around her roommates. And she wanted to assess if these things were going to result in a positive change.

Her academic goal was actually to allow these other goals to be addressed, even if it meant getting less than a 4.0.

Next slide.

So we did see a slight decline in her grades, but she did participate in more social activities. She ended up participating in a school musical and she ended up moving into an apartment with friends. She maintained a fairly positive outlook by saying I'm not defined by my GPA. She also gained some resiliency as she expanded her world socially.

Next slide.

Here are some other examples of self-advocacy slides that I don't have time going into, but you can review these at your leisure.

Next slide.

I want to stress that the transfer of skill, which we are often concerned about in rehabilitation, occurs actually very naturally when you're supporting the education of students with brain injury who are actually on campus. The activities and the context vary naturally, and as you collaborate as a coach with the student, you get to problem solve and figure out how to adjust strategies around contexts and activities. The other thing that this transfer of skills occurring naturally does, is that it allows the person to practice self-regulated thinking in a variety of natural activities as well.

One of the problems, though, of course, is that our students often have memory problems, and so we encourage them to create a portfolio playbook.

Next slide.

This portfolio playbook is organized the way the student wants to organize it. This wouldn't necessarily be the way we wanted our student to organize her playbook, but this worked for her. This is her table of contents. And so by creating a portfolio of what strategies worked for what situations under what conditions, then students have the ability, the resources, to go back and look, once they get into a problematic situation in the future.

Next slide.

There are two case studies that I won't go into detail with, but they are available in a published paper by Kennedy and Crouse (sp) in 2011. I encourage you to look at this paper because the students are very, very different. Student number one would be your ideal or less typical student, but student number two was actually more typical.

Next slide.

Student number one and two varied in the kinds of goals that they had and also varied in the kinds of outcomes. But they both improved immediately on creative assignments, their GPAs improved over time, and they both graduated recently.

Next slide.

Next slide.

And next slide.

We have other students that we've worked with. These are three of the students, and we have worked with even more since then. We've worked with students who have had mild TBI, and we've worked with students who had very severe TBI. One of the things that all of our students have in common is a sufficient amount of self-advocacy to get them to come to our program. They don't always have excellent self-awareness, but by engaging them in specific activities and in goals that they want to engage in, we've been able to convince them to stick with us and to stay in school.

Next slide.

Here are just some coaching tips that we've found that are helpful to us and helps remind us to be a coach and to not be a more traditional clinician.

Next slide.

I just want to acknowledge my colleagues, Dr. Miriam Krause, Katie O'Brien, Sarah Schellinger, and Jocelyn Yu who work with me in our college program.

Next slide.

And I'll turn it back to Lieutenant Commander Shields.

Thank you very much for your presentation. Please submit your questions for Dr. Kennedy and Mr. MacLennan via the question and answer box on your screen. We've been monitoring the question box and will forward your questions to our presenters for response. We will respond to as many questions as time permits.

The first question would be how do we measure motivation. So that would actually be for either Dr. Kennedy or Mr. MacLennan. How would you measure motivation?

That's a really good question. We measure motivation by asking ourselves do they show up to coaching sessions? And I know that's a very low bar, but for a couple of our students that's been the bar at which we've had to set. In fact, in student number two in the publication, if the audience member wants to take a look at that, you'll see that we often questioned his motivation. But by continuing to engage him in the process, and by the fact that he continued to show up for coaching sessions, we didn't really question his motivation.

Thank you. The next question I will pose towards Mr. MacLennan, although obviously Dr. Kennedy can chime in as well. A common complaint I hear is that clients feel that they do not want to get help because the testing highlights their academic insecurities. How do you suggest we get around that? Also, can you explain how the TBI damage is reversed. Many clients believe this is a permanent issues. For example, what statement can we give clients to encourage them to continue working at it over time?

Okay. That was a long question. Can you repeat the first part, please?

Sure. I actually – I'm paraphrasing a little bit. So, a common complaint I hear is that clients feel that they do not want to get help because the testing highlights their academic insecurities. How do you suggest that we help get around that? So let's start it there, and we'll go to the next part of the question after.

Okay. Well, I think the answer to that is that is that the – at least – and what I do is in a hospital, so people are under the microscope, and the get tests for neuropsychologists, and they get tests from other therapists. I think the distinction, though, is in the college simulation process. Essentially what I'm trying to do is make something a lot more realistic looking and more ecologically valid and making the distinction that this isn't really sort of those normative neuropsychological tests. What we're working towards is essentially their goal. And I think what really drives the motivation in this and the willingness to look past the fact of tests, is that this is a therapeutic activity that is supporting them towards a goal of their choice, and so it winds up being very motivating, gives them synergy and the persistence to follow through with that. And that they know there is support there, so that it's always – the process is always couched that if they succeed on a test, that's great, and if they don't, that's not so bad either because it can provide the foundation for finding out why and developing strategies that can help turn that process around.

Great. Thank you. Dr. Kennedy, did you want to add anything to that?

Yeah. I would just say that the emphasis on our program is really not on testing, and we've had college students come to our program with very little test data, and we do very little traditional testing. So we really rely more on interview information and on their past academic experiences. And the other thing that is somewhat of our mantra is that quote from Mark (Inaudible) which is, it's more important what you do with what you have than what you have. And so really the focus is on their abilities and their capabilities and not so much on their prior maybe poor academic performance.

Great. Thank you.

And I think that helps answer the second part of that, too.

It does. Thank you. So I'm going to move on to the next question. Is there any data on pre-intervention graduation rates versus post-intervention graduation rates?

Oh, great question. I really wish there was. There is not. But you can look at graduation rates across different groups, and what I can say is that there is data on the graduation rate of individuals with traumatic brain injury who come in as college freshmen. So that would be the young adult, the adolescent, who gets injured or the child that gets injured and then goes on to college. And those graduation rates are pretty abysmal. In fact, about 50% of students with brain injury drop out after the end of the first year of college. Okay? So even though we don't have the graduation rate, you can extrapolate that, but 50% are not even getting beyond their freshman year. So of the students that have participated in our program, actually they have all graduated. Now we have a very small program and one student has actually been on a leave of absence, but, yeah, I wish I had more data.

And Don MacLennan, is there anything you wanted to add into that?

No, I think that's fine.

Then I'm going to send the next question towards you, and then we'll go to Dr. Kennedy. What is the total number of students or clients you have used this process on if you can give an idea, and what are the typical cognitive injuries?

I've done this a long time. I've been doing this probably since about 1993 when presented with a very bright active duty Air Force meteorologist who continued to present with significant cognitive issues and really couldn't be dissuaded from not returning to a very high-powered Master's program at Penn State that the Air Force was putting him through. So this is where I first basically put together a college class. And it probably – so I've been doing this almost 20 years, and I would guess I've done this with probably

upwards of between 70 – 50 to 70, just a ballpark guess. And the common issues, a lot of times, again, I'm working in an inpatient setting, early post-acute, and there's a lot of management skills. And again, as a core factor for the coaching, a lot of times what I'm doing is working on implementation, initiation, tracking results, and as people move more through that, can begin to work on some of the more executive functions aspects of that as well.

There might also be, I think, a difference – I do see something of a difference between combat-injured vets as well. And one of the things that I have noticed very common in combat-injured vets is high levels of distractibility. With really no overt signs that that's present. So people can be smiling at you, nodding their head, and they simply aren't there. So one of the commonalities that I find in the combat injured is working on developing greater resistance to distractibility in the context of lectures and reading, sometimes using techniques such as self-talk. And I'll stop there. And Mary, you can contribute as well.

Yeah, I would just say that the area of management skills is critical because, again, if students can't get to class, if they can't turn papers in, if they're that disorganized, then we and they can't even see if they're going to be able to succeed in college. So for a clinician-coach who is looking for things to work on with these folks before they get to college, I would say focus on being organized, having a schedule, following a schedule, and those kinds of prioritization kinds of skills. And then once they get to college, working on implementing some of the self-learning strategies, and implementing some of the self-advocacy skills. It's just so much easier for a coach to do that if they have those management skills in place.

Great. Thank you. We have time for one more question. The question is, this is a valuable presentation. Is there work being done to support college faculty who serve students with TBI?

Mary, you can take that.

Is there work being done to support faculty?

Kind of the things that I think you're already doing at the –

Oh, right. Right.

I thought it was a great question.

It is a wonderful question. I could certainly use more support. Thank you.

You know, I think what's happened is we've had to become more creative in the way we support our own research, and so what I did was take a bit of a business model and have a contract with Minnesota State Department of Rehabilitation. And so the small funds that we generate by providing coaching services, we then get to keep that funding in the lab. And so we're supported in that way.

And then the University of Minnesota has supported me in a tremendous amount of research.

Great. Thank you very much.

And at this time I would like to introduce the Defense and Veterans Brain Injury Center, otherwise known as DVBIC, *Back to School Guide to Academic Success After Traumatic Brain Injury*. This will be available in print and eBook form later this fall. The guide is for service members and veterans who have sustained a TBI and are going to college, university, or vocational schools. This guide will help them navigate campus life, manage (audio break), learn strategies for success, and ease the transition to a civilian setting. Providers can use this guide as a teaching tool to help their patients build a list of helpful contacts, track their progress, and create a detailed schedule to manage their time. The Frequently Asked

Questions, or FAQ section, quickly offer answers to common questions about accommodation plans, financial aid, and assistive technology. Throughout the guide students can learn strategies to overcome cognitive challenges with attention and concentration, organizing and planning, memory, thought processing, and self-awareness. A comprehensive student resources section empowers students by providing website links that can help them find the answers to all of their questions and connect them to people who can help. DCoE, DVBIC, and DHCC created this guide with the help of a panel of experts from the following organizations: the Department of Veterans Affairs, the University of Minnesota, and Virginia Commonwealth University. The panel was composed of specialists from the following disciplines: counseling, neuro rehabilitation psychology, occupational therapy, psychology, social work, and speech/language psychology. We hope this resource will help service members and veterans take advantage of the military's education benefits and improve their quality life.

This concludes our presentation. Thank you, again, to our presenters, Dr. Mary Kennedy and Mr. MacLennan. Please note that this webinar was conducted for awareness and educational purposes only. If you are interested in downloading today's presentation, the slides are available in the files link.

Please take a moment to complete the interactive customer evaluation. Your browser will be automatically directed to the (inaudible) feedback site. Your feedback will provide us with valuable information that will be used to determine future topics, improve on the delivery and experience of the webinar, and reach more of your colleagues for participation.

Thank you for your participation, and please have a great day.

Thank you. Once again we thank you for your participation in today's conference. That will conclude the call. You may now disconnect. Thank you.